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EXAMINER

WILDER, CYNTHIA B

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| ART UNIT | PAPER NUMBER |
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1637

DATE MAILED: 04/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action
Before the Filing of an Appeal Brief**

Application No.

10/035,042

Applicant(s)

KRYLOV ET AL.

Examiner

Cynthia B. Wilder, Ph.D.

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--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 18 March 2005 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.
b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The reply was filed after the date of filing a Notice of Appeal, but prior to the date of filing an appeal brief. The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
(b) ☐ They raise the issue of new matter (see NOTE below);
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____.

Claim(s) objected to: _____.

Claim(s) rejected: 1 and 4-14.

Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08 or PTO-1449) Paper No(s). _____.
13. ☒ Other: See attachment to Advisory Action.

ATTACHMENT TO ADVISORY ACTION

1. Applicant's amendment filed on March 18, 2005 is acknowledged and will be entered. Claim 1 has been amended. Claims 2-3 and 15-16 have been canceled. Claims 1 and 4-14 are pending. The amendments and arguments have been thoroughly reviewed and considered but they are not found persuasive for the reasons discussed below. The rejections under 35 U.S.C. 102(e) is withdrawn in view of Applicant's amendment. The rejections under 35 U.S.C. 103(a) are maintained and discussed below.

Applicant's Traversal

2. Applicant traverses the rejections under 35 USC 102(e) on the following grounds: Applicant states that amended claim 1 distinguishes over the cited art by reciting a series of steps, (a)-(c), for determining nucleic acid-protein interactions, in an iterative fashion as recited by step (d). Applicant states that claim 1 further recites that "the nucleic acid, protein, or both used in repeated steps (a) through (c) are different from the respective nucleic acid, protein or both used in the first iteration". Applicant states that new step (d) incorporates the elements of claims 2 and 3 into currently amendment claim 1. Applicant states that the cited references do not teach or suggest each of the elements of the invention as defined by amended claim 1. Applicant states that the cited support at page 9, lines 24-25 and col. 17 lines 56-67 has nothing to do with the claimed invention but refers to a coding system for identifying "what is present at a particular site on the solid substrate". Applicant states that the cited language is directed to using headers to code for an address, placing those headers on the substrate, and methods of coding to create addresses. Applicant states that in fact taken in the context of the paragraph of a whole it is not even clear what iterative process is being reference by the final line. Applicant

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states that based on the sentence preceding the Examiner's cited language, the last line appears to refer to an iterative process for deconvoluting the coding to provide the identity for a bound component. Applicant states that in any case, neither the cited language nor the preceding paragraph to which it belongs teach that a different protein or nucleic acid should be used subsequent iterations of the method of determining protein-nucleic acid interaction.

Applicant states that the Examiner's further reliance on Wang et al as allegedly supporting the rejections of claims 1-14 and therefore, of claims 2 and 3 is misplaced. Applicant states that at col. 17, Wang et al discloses that the subject invention provides for a rapid method to detect interactions between two different components. Applicant states that the method and device allows for screening large numbers of different substances simultaneously or sequentially, providing for direct comparisons of the interactions between different substances. Applicant states that this language teaches nothing regarding the iterative process of the claimed invention. Applicant states that in particular, it completely lacks any teaching as to the use of different nucleic acids or proteins at subsequent iterations and fails to suggest why one might wish to do such a thing. Applicant states that the secondary references of Drobyshev or Arenkov does not cure the deficiency of Wang et al. Applicant summarizes the teaching of Drobyshev and Arenko and states that moreover, there is no motivation to modify or combine the teaching of Wang et al with the other references to render the present invention obvious except through the impermissible use of hindsight based on Applicant's disclosure. Applicant states that a general statement to the effect that "the solid support may take may forms" is simply too vague to provide motivation to modify or combine Wang et al with the other cited references. Applicant states that to the contrary Wang et al provides other disclosure that teaches away from

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combining it with the other cited references. Applicant states that address and coding system disclosed by Wang is completely inoperable with gel pads and therefore teaches away from combining it with the other cited references. Applicant states that address and coding system, disclosed by Wang is completely inoperable with gel pads and therefore teaches away from the combination of Wang et al with gel pads. Applicant states that gels simply lack the ability to display "pits or bars having different sizes and/or different spacing" required for the coding system of Wang. Applicant states that the inoperability of gel pads with an important feature of the invention disclosed by Wang et al would lead the skilled artisan away from combining Drobyshev or Arenkov with Wang et al. Finally applicant concludes that none of the references teaches or suggests the iterative process using different proteins or nucleic acids from the first run as required by the claimed invention as required by the claimed invention. Applicant states that secondly, Wang et al is absolutely silent on the use of gel pads as supports and lacks sufficient motivation to combine the teaching with those of the Drobyshev or Arenkov and the inoperability of the coding system set forth in Wang et al with gel pads teaches away from the combination of Wang and the other references. Applicant respectfully request that the Examiner withdrawn the rejections of claims 1-14 under 35 USC 103(a).

Examiner's Response

3. All of the arguments and amendments have been thoroughly reviewed and considered but are not found persuasive for the reasons that follows: While the Examiner acknowledges Applicant's arguments, it is noted that Applicant has only considered one aspect of the Wang et al teaching and not the reference as a whole. In regards to Applicant's arguments that the cited limitation at col. 9, which recites the language "repetitive iteration" has nothing to do with the

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claimed invention, but refers to a coding system for identifying what is present at a particular site on the solid support, the Examiner agrees that the reference teaches a coding system, but disagrees that the limitations have nothing to do with Applicant's invention. The reference teaches that the "coding system" is utilized to define the track; segment or other feature associated with one or more bound components and allows one to read what is present at a particular site on the solid substrate. The coding system as taught by Wang is merely a tagging or labeling system and is a means of monitoring any interactions that occurs between the bound component and any other components, hence protein-nucleic acid interaction or etc. In fact, in the second paragraph, the reference provides an example which depicts that the coding system is used to detect interactions between any bound components and another entity.

Wang states that "solid support may be completely exposed to a single fluid or different portions of the solid support exposed to different fluids. This will depend on the nature of the mobile components and the information to be determined. For example, one may have a cell lysate and one wishes to determined the presence of proteins which can bind to various promoters, homeodomain, other proteins, membrane proteins receptors, carbohydrates and the like." Wang states that "in some instances one would modified the DNA to provide tags and/or labels for subsequent processing and/or detection".

Therefore it is clear from the teaching of Wang that the coding system is a means of determining interaction between the immobilized substances and the components binding thereto. With respect to Applicant's Arguments concerning the use of the term "repetitive iteration", the Examiner agrees that the use of the term is in reference to determining the component immobilized on a solid support. However, neither Applicant's claims nor the specification provides a limiting definition for an "iterative process" or what constitutes a "first iteration" as recited in the instant claims. One could merely interpret the limitation as a repeat of the steps with a different protein or nucleic acid on the same solid support or a different solid

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support. Likewise, it is unclear how repeating the steps provides any unexpected results as it would be obvious to one of ordinary skill in the art to repeat the steps using different proteins and/or nucleic acid for the benefits comparing interactions and results. Nonetheless, the reference of Wang et al as a whole does not exclude the teaching of the instant invention as recited in the claims 1-14, but rather suggest repeating the screening method using different components. Wang et al discloses these limitations in the teaching that that the method allows screening the interaction between different components simultaneously or sequentially. Wang also teaches that the method may be used repetitively or for a single analysis, maybe used with the same components or different components (e.g., nucleic acids and/or protein). Thus, the teaching of Wang encompasses repeating the steps with different materials.

In regards to Applicant's arguments that Wang et al does not teach wherein the solid support is a gel pad but rather teaches away from the use of gel pads, it is noted that the reference of Wang was not cited for the use of gel pads but rather cited for its teaching of the interaction between a protein and nucleic acid. Nonetheless, contrary to Applicant's arguments the reference expressly teach that the solid substrate may take many forms, limited to the ability to segregate components, address sites of the solid substrate to determine the occurrence of events, provide for stability of the distribution of the bound component and the interaction of the mobile component, ease of production and the like. Wang provides different examples of a solid substrate, such as a disc, magnetic beads, microtitre plate, etc. While Wang does not teach the use of gel pads as the solid substrate. This teaching is provided in the secondary reference of Drobyshev et al and Arenkov et al and motivation for wanting to use the gel pads are provided therein. The references teaches that three-dimensional immobilization in gel pads provide

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higher capacity and a more homogeneous environment than heterophase immobilization on glass or filters and allows for massive parallel analysis. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, combination of Wang et al in view of Drobyshev et al and Arenkov et al teach the limitations of the instant invention. Applicant's arguments are not sufficient to overcome the prior art rejection under 35 USC 103(a). Accordingly, the rejections are maintained.

Conclusion

4. No claims are allowed. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia B. Wilder, Ph.D. whose telephone number is (571) 272-0791. The examiner works a flexible schedule and can be reached by phone and voice mail. Alternatively, a request for a return telephone call may be emailed to cynthia.wilder@uspto.gov <<mailto:cynthia.wilder@uspto.gov>>. Since email communications may not be secure, it is suggested that information in such request be limited to name, phone number, and the best time to return the call.

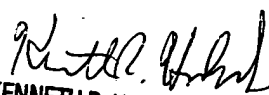
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (571) 272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.


KENNETH R. HORLICK, PH.D
PRIMARY EXAMINER

4/11/05